Prepared from FORM PTO-1390

Transmittal Letter to the United States Designated/Elected Office (DO/EO/US)

PCT #

Attorney's Docket No.	: **N08-002**
U.S. Application No.	: **Not yet assigned**
International Application No.	: **PCT/US98/18284**
International Filing Date.	: **03 September 1998 (09.03.98)**
Priority Date Claimed	: **04 September 1997 (04.09.97)**
Title of Invention	: **Noribogaine in the Treatment of Pain and Drug Addiction**
Applicant(s) for (DO/EO/US)	: **MASH, Deborah**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. X This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ___ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ___ This express request to begin national examination procedures [35 U.S.C. 371 (f)] at any time rather than delay examination until the expiration of the applicable time limit set forth in 35 U.S.C 371(b) and PCT Articles 22 and 39(1).
4. X A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. X A copy of the International Application as filed [35 U.S.C. 371(c)(2)]
   a) X is transmitted herewith (required only if not transmitted by the International Bureau)
   b) ___ has been transmitted by the international Bureau
   c) ___ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ___ A translation of the International Application into English [35 U.S.C.371(c)(2)]
7. ___ Amendments to the claims of the International Application under PCT Article 19 [35 U.S.C.371(c)(3)]
   a) ___ are transmitted herewith (required only if not transmitted by the International Bureau)
   b) ___ have been transmitted by the International Bureau
   c) ___ have not been made; however, the time limit for making such amendments has **NOT** expired.
   d) ___ have not been made and will not be made
8. ___ A translation of the amendments to the claims under PCT Article 19 [35 U.S.C.371(c)(3)]
9. X An oath or declaration of the inventor(s) [35 U.S.C.371(c)(4)]
10. ___ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 [35 U.S.C.371(c)(5)]

Items 11. to 16. below concern other document(s) or information included:

11. ___ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98
12. ___ An Assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included
13. ___ A **FIRST** preliminary amendment
    ___ A **SECOND** or **SUBSEQUENT** preliminary amendment
14. ___ A substitute specification
15. ___ A change of power of attorney and/or address letter
16. X (other items or information): **Form PCT/IPEA/416; Form PCT/IPEA/409; Form PCT/IPEA/408; Form PCT/IPEA/405; Form PCT/ISA/210; Form PCT/IB/332; Response to Invitation to Pay Additional Fees; Form PCT/IPEA/401; Form PCT/IB/308; PCT Published Application WO 99/11250; Form PCT/ISA/206; Response to Invitation to Correct Defects; Form PCT/RO/102; Form PCT/RO/101; Form PCT/RO/105; Form PCT/RO/106; Form PCT/RO/146; Form PCT/ISA/202; Form PCT/IB/304; Form PCT/IB/301; and the original application as filed.**

EXPRESS MAIL No.: **EL 411 271 305 US** Deposited: 02/29/00

I hereby certify that this correspondence is being deposited with the United States Postal Service Express mail under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231.

Henry D. Coleman

February 29, 2000
Date

17. X The following fees are submitted:

			CALCULATIONS	PTO USE ONLY
	BASIC NATIONAL FEE [37 CFR 1.492(a)(1)-(5)]:			
X	Search Report has been prepared by the EPO or JPO	$ 840.00		
___	International preliminary examination fee paid to USPTO [37 CFR 1.482]	$ 670.00		
___	No International preliminary examination fee paid to USPTO [37 CFR 1.482] but International search fee paid to USPTO [37 CFR 1.445(a)(2)]	**$** 690.00		
___	Neither International preliminary examination fee [37 CFR 1.482] nor International search fee [37 CFR 1.445(a)(2)] paid to USPTO	**$** 970.00		
___	International preliminary examination fee paid to USPTO [37 CFR 1.482] and all claims satisfied provisions of PCT Article 33(1)-(4)	$ 96.00		
	ENTER APPROPRIATE BASIC FEE AMOUNT		$970.00	
	Surcharge of $130.00 for furnishing the oath or declaration later than X 20 ___ 30 months from the earliest claimed priority date [37 CFR 1.492(e)]		$130.00	

Claims	Number filed		Number extra		Rate		
Total Claims **(Prel.Amd)**	**24**	-20=	**4**	x	$ 18. =	**$ 72.00**	
Indep. Claims	**5**	- 3=	**2**	x	$ 78. =	**$ 156.00**	
Multiple Dependent Claim(s) (if applicable)				+	$ 260. =	$	
TOTAL OF ABOVE CALCULATIONS					=	$1328.00	
Reduction by ½ for filing by small entity, if applicable. Verified Small Entity Statement must be filed. [Note 37 CFR 1.9, 1.27, 1.28]					-	$ 664.00	
SUBTOTAL					=	$ 664.00	
Processing fee of $130.00 for furnishing the English Translation later than ___20 ___30 months from the earliest claimed priority date [37 CFR 1.492(f)]						$	
TOTAL NATIONAL FEE					=	$ 664.00	
Fee for recording the enclosed assignment [37 CFR 1.21(h)] The assignment must be accompanied by an appropriate cover sheet [37 CFR 3.28, 3.31]. $40.00 per property					+	$	
TOTAL FEES ENCLOSED					=	**$ 664.00**	
(AMOUNTS TO BE REFUNDED OR CHARGED)						REFUNDED $	
						CHARGED $	

a) √ A check in the amount of **$664.00** to cover the above fees is enclosed.

b) _ Please charge my Deposit Account No. **04-0838** in the amount of $ to cover the above fees. A duplicate copy of this sheet is enclosed.

c) √ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **04-0838.** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 36 CFR 1.494 or 1.495 has not been met, a petition to revive [37 CFR 1.137(a) or (b)] must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Henry D. Coleman, Esq.
Coleman Sudol, LLP
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Tel. (212) 679-0090

Henry D. Coleman (Name) — (signature) — 32,559 (Reg. No.) — February 29, 2000 (Date)

Applicant/Patentee: Deborah C. Mash
Serial/Patent No. : Not yet assigned
Filed/Issued : Herewith
For : Noribogaine in the Treatment of Pain and Drug Addiction
Attorney's Docket No.: N08-002

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

( ) the owner of the small business concern identified below:

(X) an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN NovoNeuron Inc.
ADDRESS OF CONCERN 1 Northeast 19th Street, Suite 399, Miami, Florida 33132

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled: Noribogaine in the Treatment of Pain and Drug Addiction by inventor(s) Deborah C. Mash described in

(X) the specification filed herewith.
( ) application serial no. _____, filed _____.
( ) patent no. _____, issued _____.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).

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Cont'd.

Verified Statement (Declaration) Claiming Small Entity Status
(37 CFR 1.9(f) and 1.27(c)) - Small Business Concern

Page 2

Applicant/Patentee: Deborah C. Mash
Serial/Patent No. : Not yet assigned
Filed/Issued : Herewith
For : Noribogaine in the Treatment of Pain and Drug Addiction
Attorney's Docket No.: N08-002

NAME OF CONCERN
ADDRESS OF CONCERN
( )INDIVIDUAL ( )SMALL BUSINESS CONCERN ( )NONPROFIT ORGANIZATION

I acknowledge the duty to file in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patents issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING W. Lee Hearn
TITLE OF PERSON OTHER THAN OWNER President
ADDRESS OF PERSON SIGNING 1 Northeast 19th Street, Suite 399, Miami, FL 33132

SIGNATURE X William Lee Hearn
DATE X February 29, 2000

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PHOTO CARDS AND APPARATUS AND METHOD FOR MANUFACTURE OF CARDS

Background of the Invention

This invention relates generally to cards such as business cards and photo cards and to a method and apparatus of manufacturing such cards.

As it is known in the art, one type of card is a photogreeting card. A known photogreeting card includes a photograph and in a white band on the card a standardized decoration or sentiment ("a graphic") and personalized text. Such cards are made by using a color photographic process. The personal photograph, a color photograph of the graphic and reproduction of a black and white mask in which is inscribed the personalized text are all photographically reproduced on the photographic paper to form part of the chemically altered surface of the card.

Present commercial techniques for producing photo cards and other cards can involve ordering delays, equipment inefficiencies and limits on the nature and quality of the product produced.

Summary of the Invention

In accordance with the present invention, a photocard includes a sheet of cardstock having a developed portion containing a developed photographic image and a portion having at least one adherent, thermal printed deposit of transfer material in the form of a

graphic or text the deposit bearing microscopic features of a thermal printhead.

In accordance with an additional aspect of the invention, a stack of photo greeting cards has each card including a sheet comprised of photographic paper having a first surface portion containing a photograph and a second surface portion and at least one layer of patterned material in the form of a graphic or text disposed on either one or both of the first and second surface portions with at least some of said cards in said stack having a different text or graphic.

In accordance with a further aspect of the invention, a printing apparatus includes a receptacle for holding a plurality of cards and a workflow path. The workflow path includes an urger roller for removing a first one of said cards from the receptacle and feeding the card into the workflow path and a guide mechanism disposed to stiffen the card in a direction orthogonal to the direction of travel in the workflow path and urge it against an alignment surface. The apparatus also includes a print station disposed along the workflow path for thermally printing material onto said card and a material supplier for delivering a thermally transferrable foil or ribbon to the print station for selective printing of said thermally activated foil or ribbon onto a card delivered to said print station.

In accordance with a still further aspect of the present invention, a printing apparatus includes a receptacle for holding a plurality of cards to be printed

on by the printing apparatus and a workflow path. The workflow path includes an urger roller for delivering to the workflow path a first one of said cards from the receptacle and a retarder member to retard movement of remaining ones of said cards into said workflow path. The workflow path is provided in part by a plurality of rods arranged to form a curved guideway in the workflow path for delivering the card. A print station is disposed along the workflow path for thermally printing material onto the card and a material supplier is provided to deliver a thermally transferrable foil or ribbon to the print station for selective printing on the card delivered to said print station. A roller is provided to eject a finished card from the workflow path. The apparatus also includes a controller including a processor for executing a computer program, a memory for storing said computer program and for storing at least one bit map or other graphical representation of a sentiment to be deposited on a card and a user interface to control said processor in accordance with said program to print the card.

In accordance with yet another aspect of the invention, a method of thermally depositing a decoration on a card includes the steps of providing a bit map of a sentiment and/or text to be printed on the card, retrieving a card from a hopper; and actuating a printhead to thermally deposit material on said card in accordance with the bit map of the sentiment and/or text.

With the above arrangements one or more of the following advantages can be provided. The apparatus and process enables retail outlets to accept and process orders for the cards since there is no need for the expensive photographic processing equipment to handle the personalization and sentiments. Thus the so-called one hour shops can process a desired photograph print many copies of the photograph and then customize each one by use of the sentiment/personalization. Turnaround time on such an order can be hours rather than weeks as could be the case with the photographic process providing photographic, sentiment and personalization. For a greeting card, considering that the holiday card season is only about four weeks long, a turnaround time measured in weeks is an undesirable long period of time.

These arrangements provide other advantages. For example, with this process the quality of cards as thermally printed are not affect by problems in the photographic printing process such as light exposure problems and focus problems where the image is not sharp and clear. Thus there is less scrap and rework. Moreover, because the deposits are the result of thermal activation using a computer generated bitmap every card can have a different personalization and or sentiment without the need to retool the process as with conventional photographic process. A further advantage is that relatively small orders with different sentiments and/or personalizations can be efficiently processed. The apparatus can handle and print on materials that do

not have an high degree of inherent stiffness such as paper and photographic paper.

Brief Description of the Drawing

The foregoing features and other aspects of the invention will be described further in detail by reference to the accompanying drawings, in which:

FIG. 1 is a plan view of a photo greeting card;

FIG. 1A is a cross-sectional view taken along line 1A-1A of FIG. 1;

FIG. 1B is a cross-sectional view taken along line 1B-1B of FIG. 1;

FIG. 1C is a magnified view of a portion of the photo-greeting card taken along line 1C of FIG. 1;

FIG. 2 is a plan view of a prior art photo greeting card;

FIG. 2A is a cross-sectional view taken along line 2A-2A of FIG. 2;

FIG. 3 is a perspective view of a thermal card decorating apparatus;

FIG. 4A is a side view of the apparatus of FIG. 3 showing details of rollers used to guide a card;

FIG. 4B shows a front view of FIG. 3 showing a card guide mechanism;

FIG. 4C is a side view of a plate that supports a drive mechanism of the apparatus of FIG. 3;

FIG. 4D is a front view of an aligner member;

FIG. 5A is a schematic end view depicting the operating mechanism of the machine generally corresponding to the view of FIG. 4A;

FIG. 5B is a detailed schematic diagram showing an aligner roller;

FIG. 5C is an enlarged view of a printhead assembly used in the machine of FIG. 1;

FIG. 6 is a block diagram showing control circuitry used in the machine of FIG. 3;

FIG. 7 is a high level software flow chart showing high level operation steps of the machine of FIG.1;

FIG. 8 is a flow chart showing the printing function of the unit;

FIG. 9 is a flow chart showing printing of an individual card; and

FIG. 10 is a flow chart showing a stripe generation mechanism.

Description of the Preferred Embodiments

Referring now to FIG. 1, a card 12 as completed by a process and apparatus as will be described below is shown to include a photographic section 12a having a photograph and a customized region 12b. The customized region 12b is disposed on a white portion of the photograph section 12a and includes a graphic or sentiment 12c and a personalization such as text 12d. Sentiment 12c and personalization 12d are layers of a thermally deposited material. As particularly illustrated in FIG. 1A, either the sentiment 12c as shown and/or the personalization 12d

(FIG. 1B) are provided as a separate layer 12f of either thermally deposited metallized foil or thermally deposited ribbon material, over the customized region 12b, the underlying substrate being chemically part of the photograph section 12a. The sentiment 12c and /or the personalization 12d are not chemically part of the chemically altered surface layer portion 12e of the card 12. Thus, with this type of card a large variety of thermally deposited materials can be employed including handsome gold-appearing metal foils and the like.

Although the card 12 has been described in particular as being a greeting card comprised of photographic paper divided into separate sections, it will be understood that the sentiment and/or the text can be printed directly on the photograph section 12a of the card 12 or on a plain paper portion of the photocard, or a card of other character such a photographic business card. Moreover, the card can be any type of cardstock made of paper or cardboard instead of photographic paper and, thus, could be personalized stationary or letterhead.

A characteristic of the deposited material of the card of FIG. 1 is shown in FIG. 1C. Edges 12g of features printed at an angle with respect to the direction of printing will tend to exhibit a staircase appearance, as shown for a portion of the text element "x" on the card 12. This appearance results from the discrete nature of the thermal transfer used. The thermal transfer is provide by a thermal printhead

comprised of a plurality of typically square, small print elements, typically 100 to 600 per inch. The degree of staircasing is related to the resolution of the thermal printhead as well as the transfer characteristics of the foil or ribbon used. Also there may exist stray portions of transferred material disposed adjacent to a desired feature and that although not necessarily discernable to the naked eye could be discerned under magnification. In addition, the transferred material is deposited without any substantial, discernible impression made in the substrate of card stock.

Referring now to FIG. 2, a prior art photographic greeting card 9 is shown including an area 9a which would normally have a photograph and a customized region 9b which is typically a black or white band adjacent the photograph section 9a. The customized region 9b optionally may include one or more of a sentiment section 9c which may be a graphic or image item and personalization or text section 9d.

As shown in FIG. 2A, the photograph section 9a, the personalization 9c and the sentiment 9d are all part of a continuous surface layer portion 9e of the card 9a. That is, unlike the card as illustrated in conjunction with FIGS. 1 to 1B, the sentiment 9c and the text/ personalization 9d are photographically and chemically part of the surface layer portion 9e that forms the photograph portion of the card 9.

Referring now to FIG. 3, an embodiment of the print machine 10 is shown having a pack of cards 11 disposed in

a hopper 13. Major features of the machine 10 discernible in FIG. 3 will be described first. Detailed features will be described below in conjunction with FIGS. 4A to 4C. Additional details will be set forth in conjunction with the schematic views of FIGS. 5A to 5C.

The hopper 13 is positioned on top of the machine 10. To operate the machine 10 the user would pull back on a loader mechanism (not shown) and insert a stack of cards 11. The cards 12 are placed in between the loader mechanism and the front of the hopper 13. Releasing the loader mechanism pushes the cards 11 against the front of the machine 10. Cards 12 are delivered from the hopper 13 to a print station 32'. At the print station 32' a solenoid 48 is activated to cause portions of a metal foil 34 to be thermally deposited on the card 11. The foil is fed from spool 40, and spent foil is collected on spool 46. Printed cards 12 (detailed in FIG. 1) are collected in a receptacle 59. The user controls the machine via a keyboard 60 at the bottom and display 62 at the top. The display 62 on the machine 10 is capable of displaying two lines of 24 characters each, and the keyboard 60 is a standard computer type keyboard 60.

Referring now also to FIGS. 4A-4D and 5A, details of the printer apparatus 10 are shown. The printer 10 has the group of cards 11 being forced to the front of the hopper 14 by a spring loader member 13 (FIG. 4A). As the cards are pushed forward by the loader member 13 they push against an urger roller 18 and are placed into a workflow path 30. The urger roller 18 acts on the front

card of the stack of cards which may be any number of cards from 1 to 100 cards or more. The urger roller 18 drives the front card 11 in the stack in a downward direction. Below the card 11 is a separator roller 20 which also rotates in the same direction (clockwise) as urger roller 18.

Behind separator roller 20 is a retarder 22. The retarder 22 is a stationary piece of material of suitable coefficient of friction such that as the card 11 is driven down by roller 18, one or more cards 11 will be driven down towards a nip 20a (FIGS. 4A, 5A) between roller 20 and retarder 22. If the coefficients are chosen properly, only the front card 11 that is in contact with roller 20 will actually be driven into and through the nip 20a. The remainder of the cards 11 will come to rest somewhere along a curved surface of the retarder 22.

Accordingly, the coefficients of friction between the front surface of the card 11 and rollers 18 and 20, and the backside of the card, with respect to the front side of the card behind it in the stack, and the retarder 22, are chosen such that the friction between card 11 and fraction of rollers 18 and 20 is high enough to drive the card 11 down through the nip 20a. The coefficient of friction of the retarder 22 against the back of the card is chosen such that it is not so high as to prevent the card 11 from being driven down, but is high enough to prevent other cards not being driven by rollers 18 and 20 from being driven down through the nip 20a.

In operation, a card is driven down to a point where before the trailing edge of the card is released by roller 20, another roller 24 picks up the card 12 by acting again on the front surface of the card 12. Roller 24, an aligner roller, is very close to the right side of the machine (FIG. 4B) and is disposed at an angle of 10-15 degrees or so from the horizontal.

The aligner roller 24 drives card 11 down and to the right to force the card 11 up against an alignment channel 27a grooved or formed in an alignment member 27 (FIG. 4D) disposed adjacent the workflow path 30 (FIG. 4B as the dotted element). The depth of the channel 27a can be 0.1 to 0.5 inches or so. The alignment channel 27a is curved and has a curvature 30' that corresponds to the curvature of the workflow path 30. The right hand edge of the card 12 is driven up against the alignment channel 27a of the alignment member 27. This squares up the card assuming the card is cut so that the vertical edges are perpendicular to the horizontal edges. At this point, the leading edge of the card 12 is horizontal to the machine.

The machine 10 prints a sentiment and a personalization on the photo card. If the card was pulled from the hopper and delivered directly to the printing station, the leading edge of the card may not be parallel to the printhead 32. Thus, without some alignment mechanism the printhead could print the sentiment and personalization misaligned at an angle on the card 12.

The workflow path 30 includes a curved guideway 30a to stiffen the card 11 in an orthogonal direction to the direction of travel through the workflow path 30. The work flow path 30 will have a typical radius of 4.0 inches. The radius can also be a compound radius to provide a smooth flow of the card 12 through the workflow path 30. In addition, at a terminus part of the workflow path 30 the path is flat or planar to facilitate printing on the card. As the card leaves the hopper 14, the card travels through workflow path 30 having a fairly gentle but deliberate arc 30a. The curved guideway 30a in the workflow path is provided by guides 28, 29 (FIG. 4B) disposed both above and below the card so that the card is forced into a gentle curve in order to stiffen the card. When the aligner roller 24 pushes the card up against alignment edge 27, the cards will have some rigidity and will not tend to buckle. The arc in the workflow path prevents buckling of the thin cards as they are pushed by the aligner roller 24. Although the cards have some stiffness it is preferred to increase that stiffness in a direction across the direction of travel of the card by bending the card 11.

The axis of the aligner roller 24 is disposed an angle α of 10-15 degrees as shown so that the roller 24 uniformly contacts the card. This aligner roller 24 is used to drive the card down over against the groove 27a in aligner 27 to align the edge of the card 11 until it is in a nip 32a. The curved workflow path 30 and aligner roller 24 permit the machine 10 to print on flexible

substrates such as the photocards 11. The machine 10 has a low tolerance feed. That is, the hopper 13 can have cards of different sizes intermixed during a print run. Moreover, there is a wide tolerance in dimension for the cards and no guarantee that an operator will manually align all of the cards in the hopper 13 so that the edges of the cards are properly aligned with respect to the printhead. The aligner roller 24 and curved guideway in the workflow path 30 provide the alignment for accurate print registration.

A platen roller 31 acts behind the card 11. Opposite the platen roller 31 is the printhead 32. A foil or a ribbon 34 is disposed between the printhead 32 and the platen roller 31. Slightly beyond where the card enters the nip 32a (FIG. 5A) is a detector 35a (FIGS. 4A and 4B). Detector 35a is a photo optical device that detects an edge of a card between the platen roller and the printhead 32. When the edge of the card 11 is detected by photo-detector 35a, the printhead is forced down onto the card 12 and foil 34.

As shown in FIG. 4B, detector 35a and a second detector 35b detect whether the card 11 is a small card or a large card. When the card comes down and is detected by sensor 35a, sensor 35b off to the left will either see a card or not a card depending on the length of the card to indicate whether it was a large or small card. This is used by the software in printing. An empty sensor 35c is provided in the feed hopper and is

used to indicate to a controller whether there are more cards waiting to be printed.

The thermal transfer ribbon or foil 34 is fed from a supply spool 40 and disposed around a guide 42. The ribbon or foil 34 is disposed under the printhead 32 past another guide 44 and onto a take-up spool 46. Card 11 is fed such that the leading edge is at the photo sensor 35. The printhead 32 is forced down onto the platen roller by an electrical solenoid 48 that acts through a compression spring 50. Compression spring 50 is captive such that it is pre-loaded with a certain force. That is, the spring 50 is compressed from a longer length to a shorter length such that the additional compression caused by the electrical solenoid 48 driving plunger 48a through the spring 50 does not substantially change the spring force. In this manner, the spring 50 helps to control the force that the printhead 32 actually exerts on the platen roller 31 since the solenoid is driven with a relatively high force. With this arrangement, solenoid 48 will bottom out plunger 48a and push the spring on one end while the spring on the other end is bearing against the printhead 32. Thus, the spring 50 controls the pressure of the printhead 32, even though it is very difficult to control the pressure of the solenoid 48.

The pulley ratios and roller diameters are all chosen such that there is a steady progression of linear speed starting with the urger roller 18 such that the urger roller 18 is moving with a certain surface speed, the separator roller 20 is moving with a higher surface

speed and the aligner roller 24 is moving with yet a higher surface speed keeping the card 11 in tension.

All these rollers are on one-way clutches. The urger roller 18 will push the card down at a certain speed. When the separator roller 20 picks it up, it moves the card faster so that urger roller 18 has to be allowed to slip on the shaft. Similarly, when the aligner roller 24 picks the card up, the separator roller 20 may slip also. In other words, a slip mechanism is provided within the workflow path 30. Since the card is still under control of the aligner roller 24 when it is under the printhead 32, and the printhead drops down and starts moving the card, there is a portion of the card under the aligner roller 24. This permits the card while in the workflow path 30 to be under control of one of the drive mechanisms.

Referring momentarily now to FIG. 5C, the print station 33 is schematically shown. The print station 33 includes solenoid 48 having a plunger 48a, retracting spring 52, a compression spring mechanism 50, and a block 56. Rods 56b are disposed in holes 56a in block 56 to permit the printhead 32 to move very precisely back and forth in the block 56 that guides the printhead 32. Disposed around rods 50b are the springs 52 that retract the printhead 32 and act in the opposite direction as the compression spring 50. At the end of the rods 56b are a retaining screw and washer combination 52a.

As shown, if the printhead 32 is pushed towards the platen roller 31, the printhead 32 will compress springs

52, and if the printhead is returned, springs 52 will act to pull the printhead assembly back towards the block 56. The printhead 32 including block 56 will come to rest on a surface of the block 56.

The compression spring 50 is disposed in a cylinder 50a. The compression spring 50 drives the printhead 32 down. A rod 50b is in cooperation with the spring 50. Part of rod 50b extends outside the cylinder 50a and part of rod 50b is inside the cylinder 50a bearing on the spring 50. The spring 50 is assembled under a compressive force of 5 to 7 pounds. The block 56 is relieved or opened in the area as indicated by hole 56a in the block where the cylinder 50a is placed. On the outside of the block 56 is the solenoid 48 and the plunger 48a. The plunger 48a is associated with the electric solenoid 48 which in its relaxed position may bear lightly on the rod 50b. When the solenoid 48 becomes activated, the plunger 48a is pushed from the solenoid 48 and bears on the rod 50b, and the printhead 32 is pushed in the direction of the platen roller 31. The printhead 32 pushes on the foil 34 and the card 11 such that the card 11 and the foil 34 are forced together and against the platen roller 31. When the printhead 32 comes to rest against the platen roller 31, additional travel of the solenoid 48 starts to compress the spring 50 trapped in the cylinder 50a that contains the spring 50. As long as the movement on the solenoid plunger 48a is long enough, it serves to push the printhead 32, trapping the foil and card to be printed underneath it,

and any additional compression will produce a force that is determined by the spring compression.

Referring now again to FIGS. 4A and 5A, once the card 11 has been pulled from the hopper 14, aligned, detected by detector 35a and positioned between the printhead 32 and the platen roller 31, the solenoid 48 engages and forces the printhead mechanism down as previously described. The platen roller 31 rotates at a known rate, and the printhead 32 is energized by the control electronics 61 (FIG. 6) loaded with data to be printed on a periodic basis. The print elements (not shown) are heated and the printhead 32 transfers material from the ribbon or foil 34 onto the card 11. As the card 11 is driven down, foil 34 is pulled off of supply roll 40 and returned on take up roll 46. Take up roll 46 is driven mechanically and supply roll 40 is essentially passive. A friction mechanism (not shown) is provided to the supply roll 40 to provide back tension to the foil as it comes off of the supply roll 40. Take up roll 46 is over-driven mechanically and there is a slip arrangement so that a known amount of take up tension is imparted to the foil 34 as it leaves the print area.

When the card 11 has been printed, which typically is well before the card 11 is through the print nip 32a, the card is now the decorated card 12 as described in conjunction with FIG. 1. Since only a couple of lines and a graphic are typically printed, the decorated card 12 will still be between the platen roller 31 and the printhead 32. However, the leading edge of the decorated

card 12 will have by then engaged an eject roller 57 backed up by a pressure mechanism provided by an idler roller 58 or an attending piece of spring steel (not shown). As the decorated card 12 is directed towards a nip 57a formed by roller 57 and 58 it is forced into nip 57a during printing because those rollers 57, 58 will roll easily in the direction to allow the decorated card 12 to enter nip 57a. But, once the print cycle is complete and the head retracts, the eject roller 57 is actually driven by the system, thus pulling the decorated card 12 through it and dropping the decorated card 12 into a receptacle or hopper 59.

Referring now to FIG. 4C, the drive mechanism 200 for the printing machine 10 is shown to include a stepper motor 201 which drives belt 202 on a pulley 204 that is mounted on a first part of the shaft 205. A second part of the shaft 205 has two other pulleys 204a, 204b so there are three pulleys 204, 204a, 204b on shaft 205. Pulley 204b drives belt 206 and pulley 204b drives belt 208. Pulleys 204a, 204b are not tied directly to shaft 205 but are on one-way clutches. The stepper motor 201 when it turns in one direction will drive one pulley and when it turns in the other direction will turn the other pulley so only belt 206 or 208 will move, but both belts will not move at the same time. Belt 206 is moved when the unit is pulling a card 12 from the hopper, aligning it and presenting it to the print station. At the print station, belt 206 stops and belt 208 starts. Belt 208 drives the platen roller 31 and also runs the foil take-

up spool 46. When the printing is completed, belt 208 stops, and belt 206 starts again, pulling a new card 11 down and at the same time ejects the card 12 just printed.

Belt 206 drives pulley 210 and a shaft 211. Pulley 210 is a gear reduction pulley. The smaller pulley 214 has another belt 216 which drives two shafts 218a, 220a via pulleys 218, 220. Shaft 218 couples to the urger roller 18, and shaft 220 couples to the separator roller 20.

The belt 206 continues around through two idler tensioners 222. They are adjustable to set the correct belt tension. The belt 206 continues around pulley 224 and shaft 224a which drives the aligner roller 24 and drives a shaft 226 which is the shaft that eject roller 57 is on. The belt 208 is driven by a pulley 204a on shaft 204 and simply goes around the pulley 228 on shaft 228a which contains the platen roller 31 and also drives the shaft 230a which is driving the take-up spool 46.

Referring now to FIG. 6, the control electronics 61 for the printer 10 are shown to include a processor module 63 including a microprocessor (not shown), a program memory 64 comprised of PROM or ROM also storing bitmaps of sentiments and text characters. The controller also includes working memory such as random access memory 65 and interfaces 67 and 68. Interface 67 is used to interface a PCMCIA card 69 whereas interface 68 is used to interface the keyboard 60 and the display 62. The elements of the controller such as the processor

63, memories 64 and 65 and interfaces 67 and 68 are coupled together via a bus 66.

In this machine 10 there are several user selectable options. There is a software menu system (to be described in FIGS. 5-8) executed in the controller 61 which takes the user through those options. One such option is selecting the format that the sentiment will be printed in. There are one of four different possible formats. The formats are landscape right, portrait bottom, landscape left and portrait top. The cards 12 are always loaded in the same orientation. Here the white band is to the right on the machine 10. The user selects the different formats to produce the proper image depending on how the picture is in relationship to the card. The picture might be in a portrait format where the long axis is vertical or it might be in a landscape format where the long axis is horizontal.

After the format is selected, one of the number of pre-stored sentiments or no sentiment is selected. The none feature is used where the sentiment may have already been printed photographically. A sentiment is a small icon or image. The sentiment can be a graphic or text, a combination graphic and text. The sentiment is stored in the read-only memory 64 as a bit map or some graphic format.

The user steps through the selections. The user has the option of choosing one of a plurality of fonts in which the personalized text will appear. The user enters one or two lines of text of a variable number of

characters up to here a maximum of 20 characters. In one embodiment, the same text is printed on all cards in the order. However, other arrangements are desirable.

With the presence of a PCMCIA card 69 coupled to the computer, sentiments and fonts can be changed in the field for different holidays. That is, a PCMCIA memory card 69 can be plugged into the slot and have a different collection of sentiments for the same or a different season or other occasions. Alternatively, by using the PCMCIA card 69, a list of personalized names can be provided from a computer (not shown) to place a different personalization such as a different name on every card. This information can also be provided by way of disk such as a floppy disk in a floppy drive (not shown). Also, a serial port (not shown) can be used to tie the printer into a network.

Referring now to FIG. 7, the steps used to operate the machine 10 are shown. As shown, the machine 10 initializes itself with some initialization or self-test procedures 70. In addition, there is a routine 71 used at the factory or by a customer service technician for calibration/setup of the machine. The machine 10 also has a setup mode 72. In setup mode 72 the user selects one of a number of options to set, either the select format routine 74, choose sentiment routine 76, font select routine 78, enter text routine 80 or print card routine 82. As mentioned, font and font sizes are selectable while the print space is typically limited to a fixed region. If the selected font and size for a

maximum number of characters desired to be printed by a user is too long for the line, the software will automatically measure the length of the line based on the characters that were typed in and print at the largest font size available that can fit in the line. That is, if the font is too big the computer will select a smaller size.

Referring now to FIG. 8 the steps used in printing 82 a card are shown. The process produces a bit map of the sentiment chosen and/or whatever text has been entered at step 84. Having completed production of the bit map, the process activates the stepper motor 201 at step 86 in the unit to select a card 11 or pull a card 12 from the hopper 14, pass it down to the aligner and to the print station 32. When the card arrives at the print station it is detected by the photo detector 35a (FIG. 3). The process activates the solenoid 48 to press the printhead 32 down on the foil 34 and card 11. The process also initiates the motor 201 to drive platen roller 31 while the computer starts sending data to the printhead 32 to initiate the transfer of foil 34 onto the card 11.

This is a repetitive process which continues until the entire image has been transferred onto the card at which point the software retracts the printhead and the decorated card 12 will be ejected from the print station by eject roller 57.

At this point, the software will do one of two things. If this is the first card of a batch to be

printed as determined at step 90, it will pause at step 92 and place a message on the display 62 at step 94 of the machine signaling the operator to check the card to see if it is satisfactory. The operator responds by pressing the Y or N key on the keyboard 60, for example. This feature enables the operator to correct any mistakes which may have been made in setting up the machine for printing the job, (i.e., misspelling of a name or selecting the wrong font or sentiment). If the response is Y (the card is OK) the process branches to step 86 to repeat steps 86 and 88 to print the card. The next time the process gets to step 90 it will no longer be printing the first card. Then at step 96 the process tests if there are more cards to be printed. The process remains in this loop, printing all the cards until there are no more cards to be printed. When all the cards have been printed, the process branches to step 98 and returns to the setup state 72 (FIG. 7). Going back to the first card, if the first card printed was not printed satisfactorily at step 94, control is transferred immediately to setup 72 (FIG. 7) to allow the operator to setup any changes necessary to correct the mistakes.

Referring now to FIG. 9 details of the print card step 88 are shown. The card is moved from the hopper 13, to the aligner in the print station, and at box 100 the motor 201 is started. At step 102 print cycles are initiated which are detailed in conjunction with FIG. 10. At step 104 the process waits for all the print cycles to complete. Once all the print cycles have been completed,

the images are completely printed, and so at step 106 the platen motor is stopped and at step 108 the print cycles are stopped and at step 110 control is returned to setup.

Referring now to FIG. 10 the print cycle routine 102 is depicted. The image is printed on card 12 in a series of lines or stripes that are essentially contiguous. The basic resolution of the printhead 32 determines dimensions of the stripes. Here a resolution of 200 dots/inch is used so that the width of the stripe is about 0.005 inches, and the width of each pixel is about 0.005 inches. Resolution is ultimately determined by printhead technology.

The stripe is a series of horizontal lines which contain picture information on a pixel level. The information is loaded into the printhead 32 and the pixels that are to be printed are printed by energizing individual print elements in the printhead producing localized heat upon particular locations. This localized heat transfers the color material to the card 11. Preferably, as an enhancement, not only are the pixels as presented by the graphic printed but the transfer of foil is enhanced by adding energy to certain pixels over and above the average energy used for printing. Here this is accomplished by printing each stripe a multiple of times. Preferably, here each stripe is printed three times. In two of the print cycles, all of the dots that are to be printed on that stripe are energized. Whereas, in one of the print cycles only certain dots are energized. The stripe is produced by

loading the printhead 32 which is essentially a parallel mechanism for transferring heat from the printhead to the foil, one stripe at a time. The printhead prints across the entire width of the image. Specific dots in that stripe are heated depending upon whether or not that dot is visible in the image. Images can be thought of as areas where there is no transfer or areas where there is transfer.

In areas where transfer is to take place, the dots in that line are heated up or turned on and areas where there is no element of the image and therefore no foil is to be transferred, those dots are not turned on and remain cool.

Edge enhancement is used to get very clean edges. The parameters, temperature and pressure are tuned to the particular foil used in an empirical manner.

Referring now to FIG. 10, the process for selectively controlling the dot energy such that the edge dots are treated differently than the interior dots of an image is shown. The print stripe routine 112 is an interrupt service routine. Routine 112 is called a plurality of times, here three, although one or more times can be used. The routine 112 is also called at least once or as preferred three times for each line to be printed. This occurs while the process waits in step 104 (FIG. 9). Here each logical single line of the image is reprinted three times as three sub-stripes. Three times the printhead 32 is loaded with data and energized for a particular stripe. As mentioned above,

two of those times the data are the same and the third time the data are different. At step 114 it is determined whether this is the first time the stripe is being printed and, if so, at step 116 the processor loads a line of new print data into the printhead 32 provided from the bit map. The bit map can be thought of as a series of print lines, one after the other, each print line containing data for that piece of the image. That line is pulled out and loaded directly into the printhead 32.

At step 118 those dots are enabled at a first energy level. This instance of the stripe routine is done and it returns to the calling program. All of the returns shown are the same so they are labeled 120. This print stripe routine is an interrupt (it responds to an external event) routine. A software or hardware timer within the processor generates a signal which causes this routine to be called on a periodic basis. The next time the routine 112 is called, which will be typically a millisecond apart, the routine 112 is re-entered. Since this time is not the first time the routine was called, the process tests to see if this is the second time at step 122. If it is the second time, it simply enters the data used the first time at step 124 and energizes the dots at a second power level and returns.

At this point the data fed to the printhead 32 is not changed. The data is the same as was loaded in the first instance. Again, about a millisecond later the process re-enters the print stripe routine 112. The

process will determine that it is not the second time but rather is the third time. At step 126, therefore, the process provides a unique line that actuates only the dots which have not been printed in previous print stripes, not to be confused with previous "sub-stripes" of this print stripe. If the previous full stripe had not been on or if the dots were on a right or left edge of the image, where there is no neighboring dot, those dots will then be loaded into the printhead at step 128 and those dots will be printed at step 130 at a third power level.

All of the power levels are the same. Alternatively, the power levels can be different to better tune the process. Typical power levels are between 100 milliwatts and 300 milliwatts. Further details on thermal printing in general can be found in U.S. Application Serial No. 08/789,578 filed on January 28, 1997 and in U.S. Application Serial No. 08/790,236 both assigned to the assignee of the present invention and incorporated herein by reference.

Since all three sub-stripes of that stripe have been printed, a stripe counter (not shown) is incremented and control is returned to 104. Thus, the next time the process enters the print stripe it is starting a new scan or new stripe.

As mentioned above, FIG. 7 also shows a calibration setup function 71 that the user normally would not access. Here access to step 71 requires a special code. In this function a number of test functions such as to

test the memory, the PCMCIA card if installed, load the PCMCIA card with data from resident memory in the unit, and transfer the data into the PCMCIA card. In addition, this process allows monitoring of certain parameters, such as the print temperature and the status of the various detectors. In addition, this function allows a change to or save of the parameters that relates to print energy, printhead temperature, speed of operation, and so forth. For diagnostic purposes the motor 201 in the unit can be run forward and backwards at different speeds to debug possible problems. It can print a test pattern and a test card and return to the main menu.

While the machine has been principally described with the use of a thermal transfer foil having a metallic look, the machine can also handle thermal transfer ribbons. Thus, the machine can be used to personalize letterhead, print directly on the photographic portion of a card and so forth. The machine can be used to print individualized wedding invitations and so forth.

Having described preferred embodiments of the invention, it will now be apparent to one of skill in the art that other embodiments incorporating its concept may be used. It is felt, therefore, that this invention should not be limited to the disclosed embodiments, but rather should be limited only by the spirit and scope of the appended claims.

What is claimed is:

1. A photocard comprising:

a sheet of cardstock having a developed portion containing a developed photographic image and a portion having at least one adherent, thermal printed deposit of transfer material in the form of a graphic or text, the deposit bearing microscopic features of a thermal printhead.

2. The photocard as recited in claim 1 wherein said portion bearing the photographic image and the portion bearing the deposit of transfer material are integral portions of a uniform sheet.

3. The photocard as recited in claim 2 wherein said portion containing the photographic image is a major portion of the photocard and the portion bearing the deposit of transfer material is a relatively small band adjacent to the photographically developed portion.

4. The photocard as recited in claim 3 wherein said deposit of material is a metallized material.

5. The photocard as recited in claim 4 wherein said photocard includes the text comprised of a patterned layer of said metallized material on the portion bearing

the deposit of transfer material and a graphic disposed within and chemically part of the photocard.

6. The photocard as recited in claim 4 wherein said photocard includes both the text and the graphic as deposits on the portion of the photocard bearing the deposit of transfer material.

7. The photocard as recited in claim 2 wherein said layer of material is a metallized material.

8. The photocard as recited in claim 7 wherein said photocard includes the text comprised of a patterned layer of said metallized material on the photographically developed portion and a graphic disposed within and chemically part of the photocard.

9. The photocard as recited in claim 7 wherein said photocard includes the text comprised of a patterned layer of said metallized material on the photographically developed portion and wherein said graphic is a layer of said metallized material on the portion bearing the deposit of transfer material.

10. The photocard as recited in claim 1 wherein the photocard is a photogreeting card.

11. The photocard as recited in claim 9 wherein the photocard is a photogreeting card.

12. A stack of photo greeting cards each card comprising:

a sheet comprised of photographic paper having a first surface portion containing a photograph and a second surface portion;

at least one layer of patterned material in the form of a graphic or text disposed on either one or both of the first and second surface portions with at least some of said cards in said stack having a different text or graphic.

13. The card stack of claim 12 wherein said different text or graphic is provided by feeding information corresponding to said different text or graphic and producing a bit map of each of said different text or graphic and using said bit map to control a thermal print head to thermally deposit the material.

14. A printing apparatus comprising:

a receptacle for holding a plurality of cards;

a workflow path comprised of:

an urger roller for removing a first one of said cards from the receptacle and feeding the card into the workflow path;

a guide mechanism disposed to stiffen the card in a direction orthogonal to the direction of travel in the workflow path and urge it against an alignment surface;

a print station disposed along the workflow path for thermally printing transfer material onto said card; and

a material supplier for delivering a thermally transferrable foil or ribbon to the print station for selective printing of said thermally activated foil or ribbon onto a card delivered to said print station.

15. The apparatus of claim 14 wherein the guideway comprises a plurality of rods arranged to form a curve to maintain the stiffness on the card while in the workflow path.

16. The apparatus of claim 14 further comprising:

a retarder member, disposed adjacent said urger roller, to retard movement of a plurality of said cards into said workflow path.

17. The apparatus of claim 16 further comprising:

a roller for ejecting a finished card from the workflow path.

18. The apparatus as recited in claim 14 wherein said print station includes a thermal printhead and a solenoid for controlling the relative position of said thermal printhead.

19. The apparatus of claim 18 wherein said print station further includes a platen roller disposed opposite to the printhead and arranged such that when a card and thermal material are in position to be printed, the printhead traps the card and thermal material against the platen roller.

20. The apparatus as recited in claim 15 wherein said workflow path further comprises an aligner roller to align the card in said workflow path.

21. The apparatus as recited in claim 15 wherein said means for retarding movement of subsequent cards into said workflow path comprises a fixed stationary element disposed adjacent to the receptacle portion of said workflow path, said element having a curved surface disposed adjacent to an outlet portion of said receptacle; and

a separating roller disposed opposite to said member to form a nip within which only one of said cards would be urged by the urging roller.

22. The apparatus as recited in claim 20 wherein said curved guideway and aligner roller cooperate to align an edge of the card with respect to the printhead by permitting the aligner roller to push the card against an aligner surface while the card is traveling in the workflow path.

23. The apparatus as recited in claim 21 wherein the coefficient of friction between the urger roller and the separating roller is sufficiently high to drive the first one of the cards down through the nip formed between the separating roller and the retarder surface, whereas the coefficient of friction of the retarder surface against the back of the card is low enough so as not to prevent the first one of the cards from being driven through the nip, but is sufficiently high enough to prevent the remaining cards that are not being driven by the urger roller to be driven through the nip.

24. The apparatus of claim 19 further including a second receptacle for receiving printed cards, said second receptacle disposed adjacent to the ejecting roller.

25. A method of thermally depositing a decoration on a card comprising the steps of:

providing a bit map of a sentiment and/or text to be printed on the card;

retrieving a card from a hopper; and

actuating a printhead to thermally deposit material on said card in accordance with the bit map of the sentiment and/or text.

26. The method as recited in claim 25 wherein said step of printing the card comprises the steps of:

starting a platen roller which rolls against a back surface of said card; and

thermally depositing the text or sentiment onto said card.

27. The method as recited in claim 26 wherein said step of thermally depositing comprises the steps of:

depositing the selected sentiment or text at least twice by activating elements of a thermal print head using data corresponding to a bit map of the sentiment and/or text to be printed; and

depositing said selected sentiment or text a third time by depositing material activated by only those elements of the printhead that were not activated during a prior print line.

28. A printing apparatus comprising:

a receptacle for holding a plurality of cards to be printed on by the printing apparatus;

a workflow path comprising:

an urger roller for delivering to the workflow path a first one of said cards from the receptacle;

a retarder member to retard movement of remaining ones of said cards into said workflow path;

a plurality of rods arranged to form a curved guideway in the workflow path for delivering a card;

a print station disposed along the workflow path for thermally printing material onto the card;

a material supplier to deliver a thermally activated foil or ribbon to the print station for selective printing on the card delivered to said print station;

a roller for ejecting a finished card from the workflow path; and

a controller comprising:

a processor for executing a computer program;

a memory for storing said computer program and for storing at least one bit map or other graphical representation of a sentiment to be deposited on a card; and

a user interface to control said processor in accordance with said program to print the card.

29. The apparatus as recited in claim 28 wherein said workflow path further comprises an aligner roller to align the card in said workflow path.

30. The apparatus as recited in claim 29 wherein said curved guideway and aligner roller cooperate to align an edge of the card with respect to the printhead by permitting the aligner roller to push the card against an aligner surface while the card is travelling in the workflow path.

31. An photocard comprising:

a sheet comprised of paper having a first photographically developed portion containing a

photograph and a separate portion joined to said developed portion; and

at least one adherent deposit of material in the form of a graphic or printed text disposed on the photocard said deposit provided by actuating a printhead to thermally deposit material on said card in accordance with a bit map of the graphic and/or text.

32. The photocard as recited in claim 31 wherein said separate portion and photographically developed portion are integral portions of a continuous sheet of photographic paper.

33. The photocard as recited in claim 32 wherein said photographically developed portion is a major portion of the photocard and the separate portion is a relatively small band disposed adjacent to the photographically developed portion.

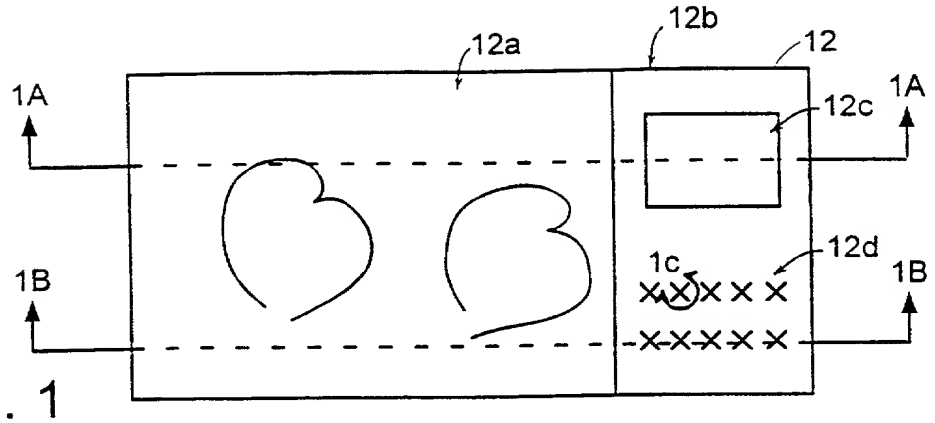


FIG. 1

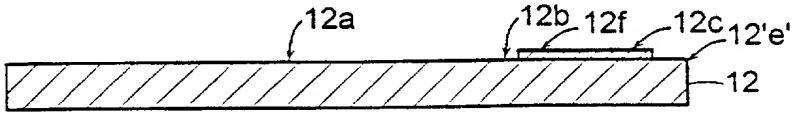


FIG. 1A

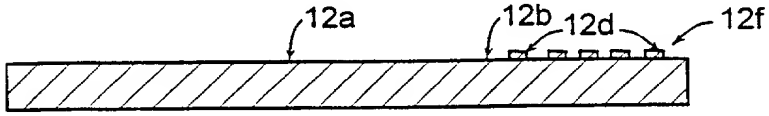


FIG. 1B

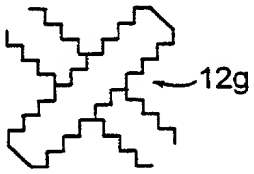


FIG. 1C

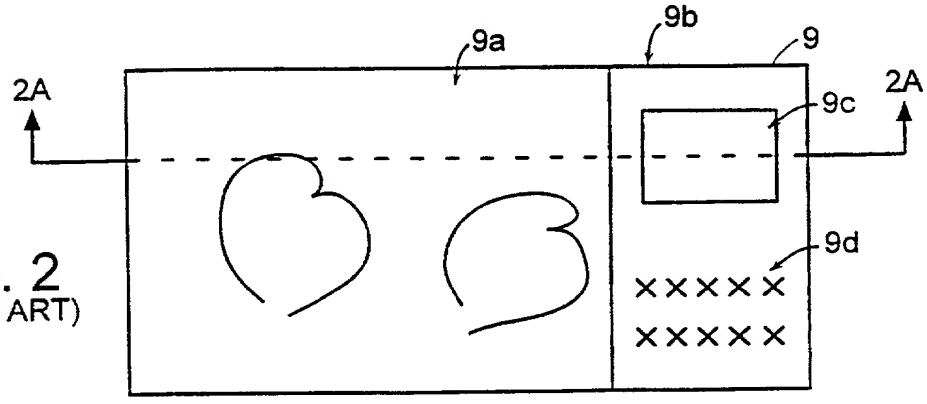


FIG. 2
(PRIOR ART)

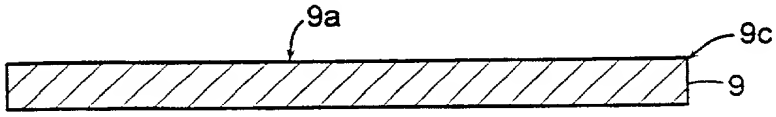


FIG. 2A
(PRIOR ART)

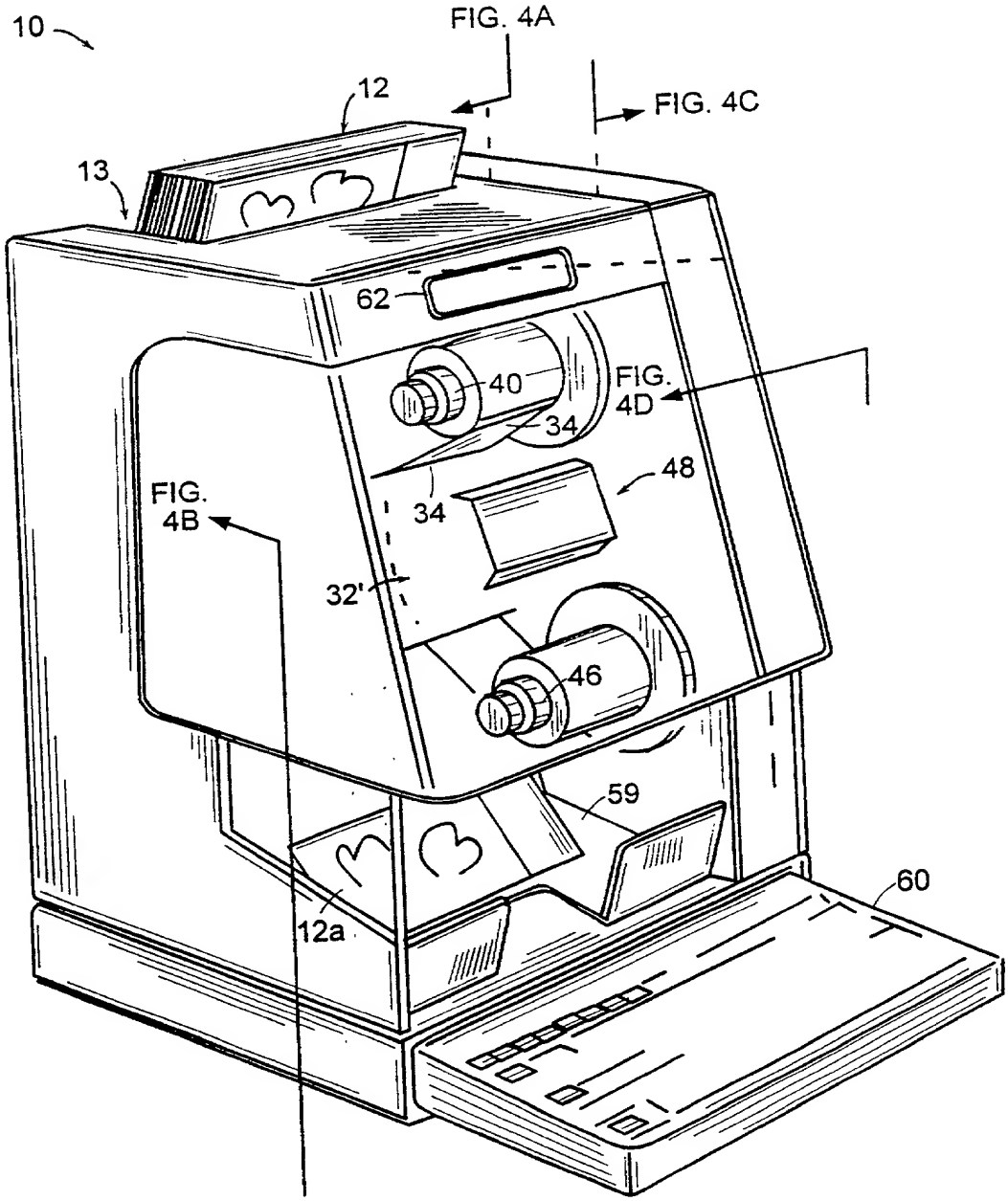
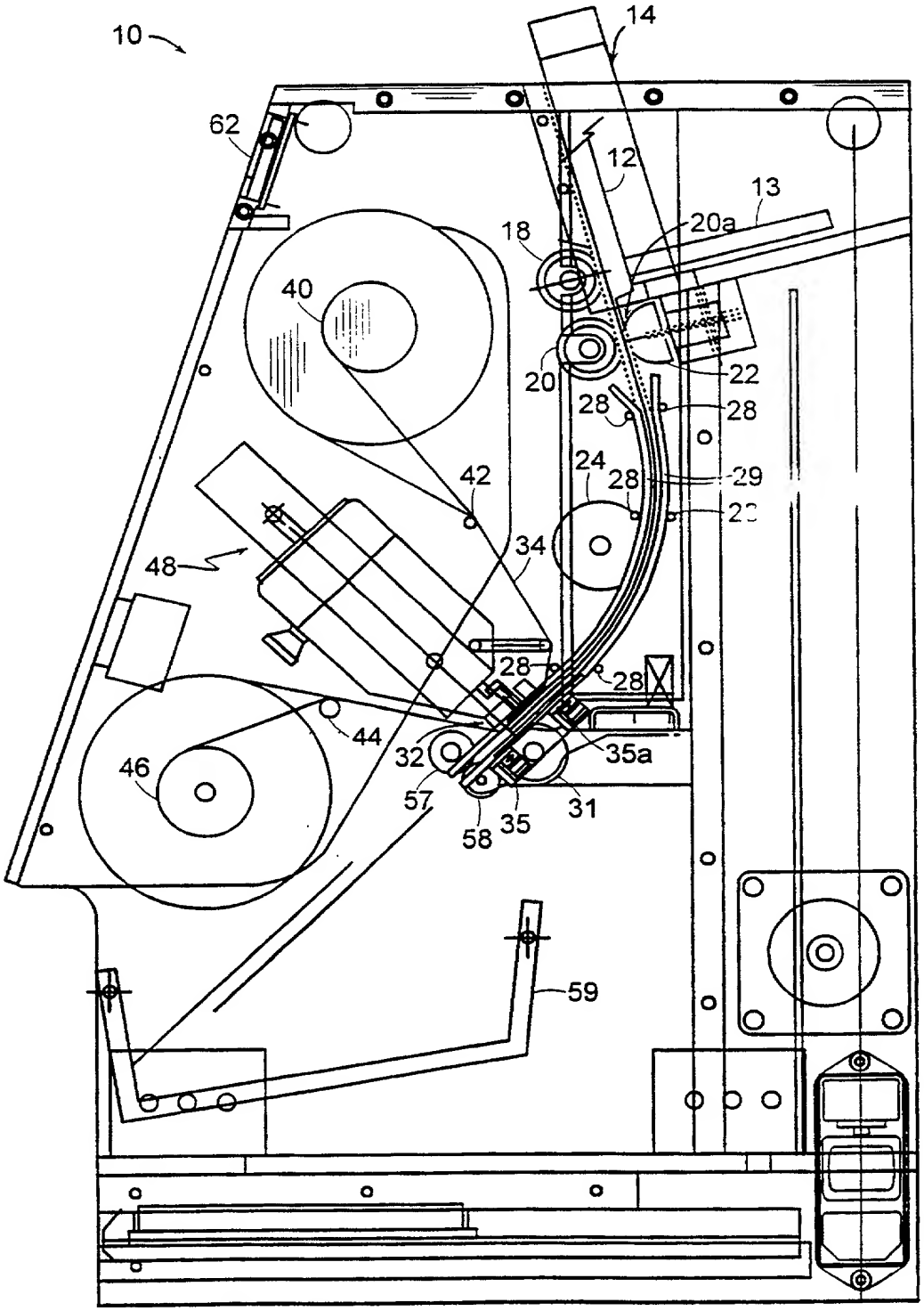


FIG. 3


10
14
62
12
13
18
20a
40
20
22
28
28
24
28
29
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34
48
28
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46
32
35a
57
58
35
31
59

FIG. 4A

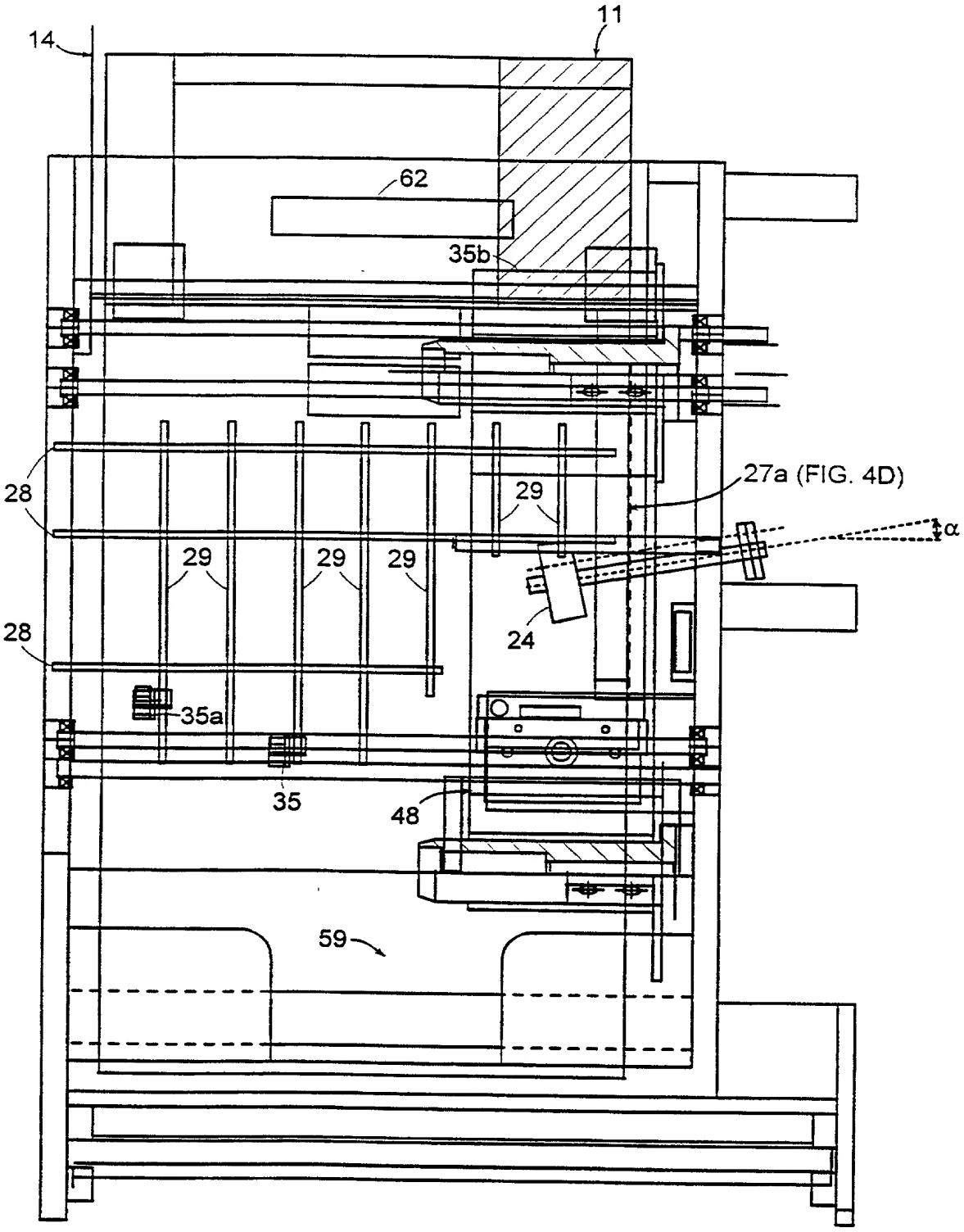
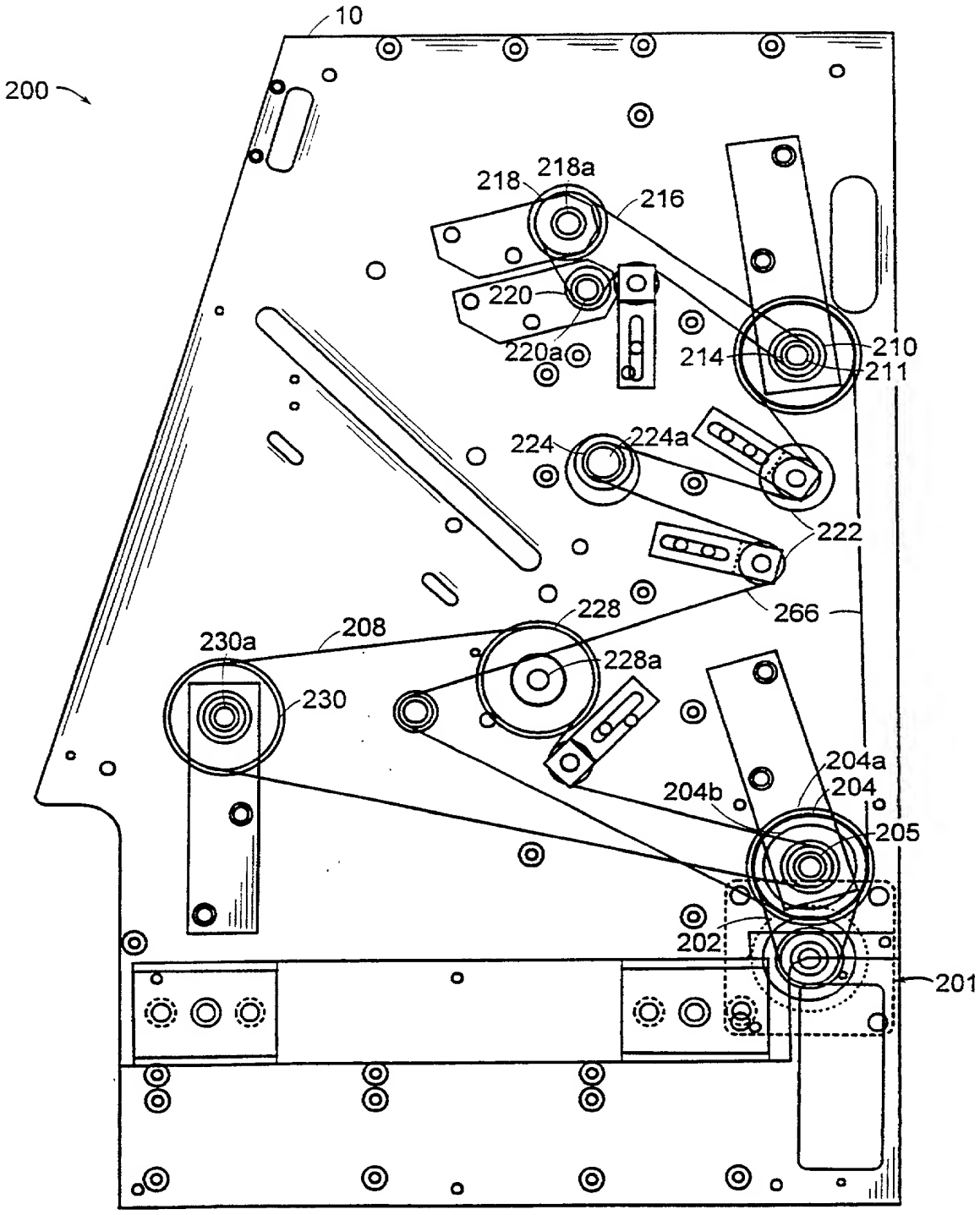


FIG. 4B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200
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220
220a
214
210
211
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224a
222
266
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228a
208
230a
230
204a
204b
204
205
202
201

FIG. 4C

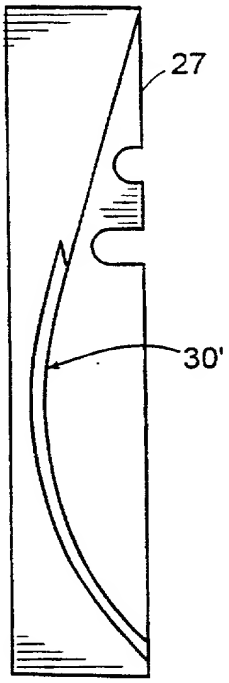

FIG. 4D

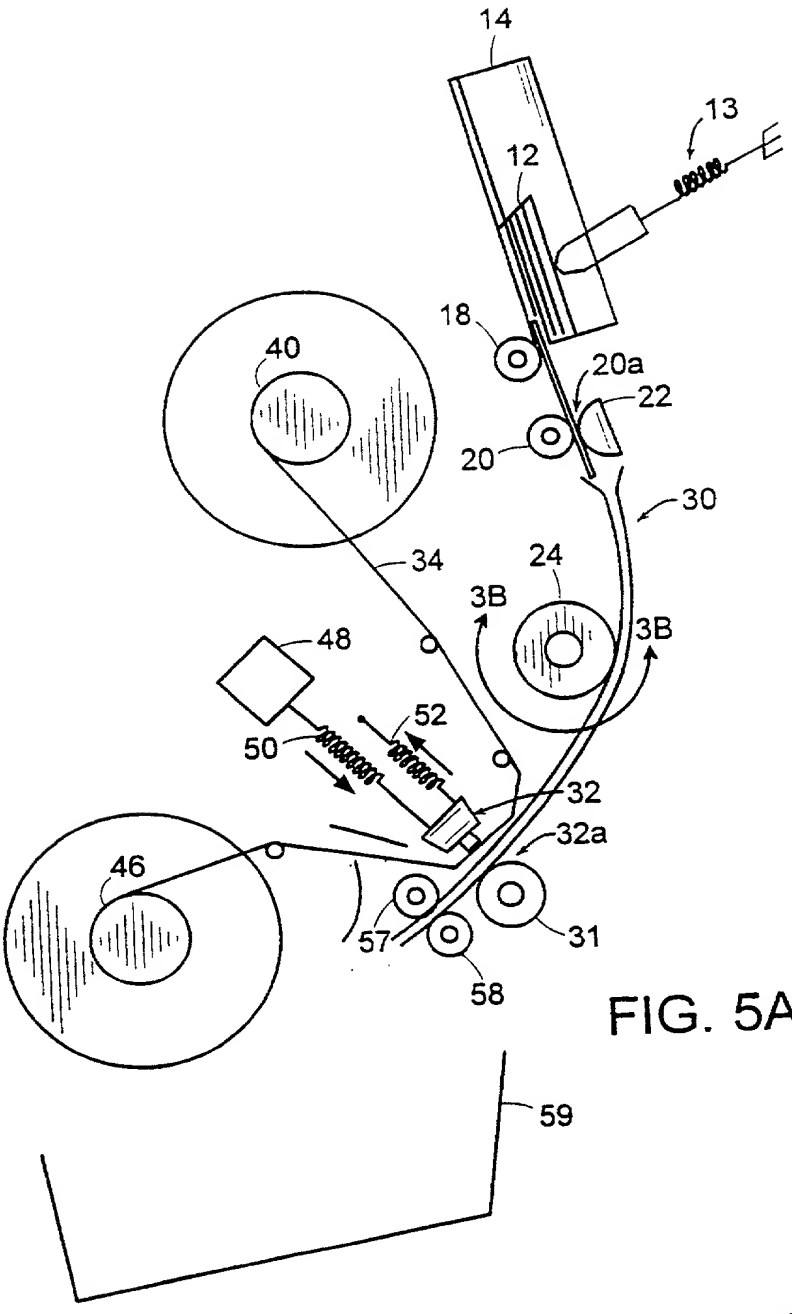
14
13
12
18
40
20a
22
20
30
34
24
3B
3B
48
52
50
32
32a
46
57
31
58
59

FIG. 5A

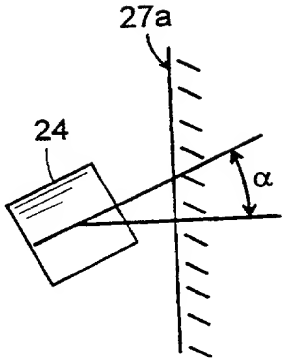
27a
24
α

FIG. 5B

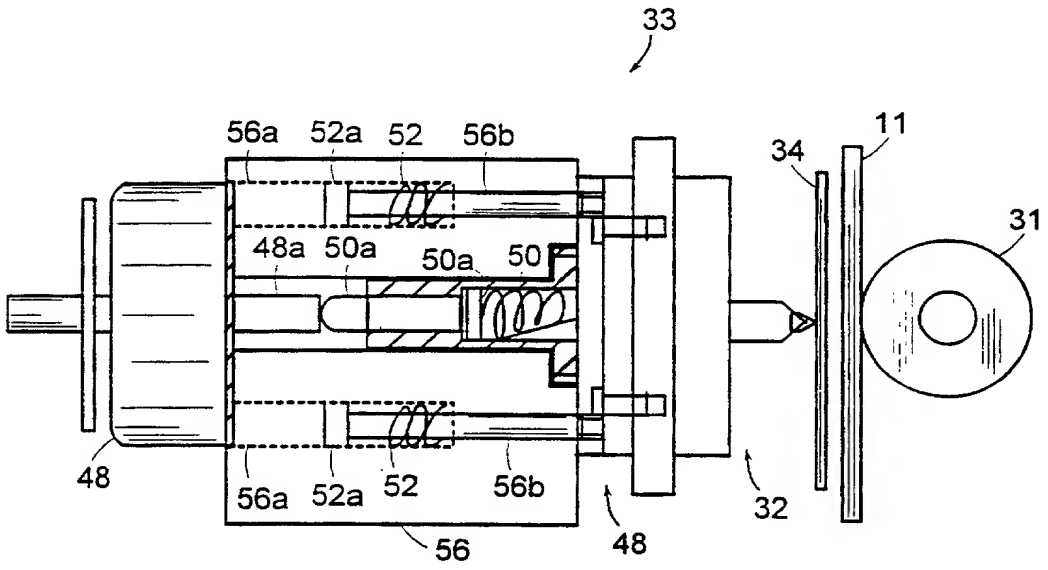

FIG. 5C

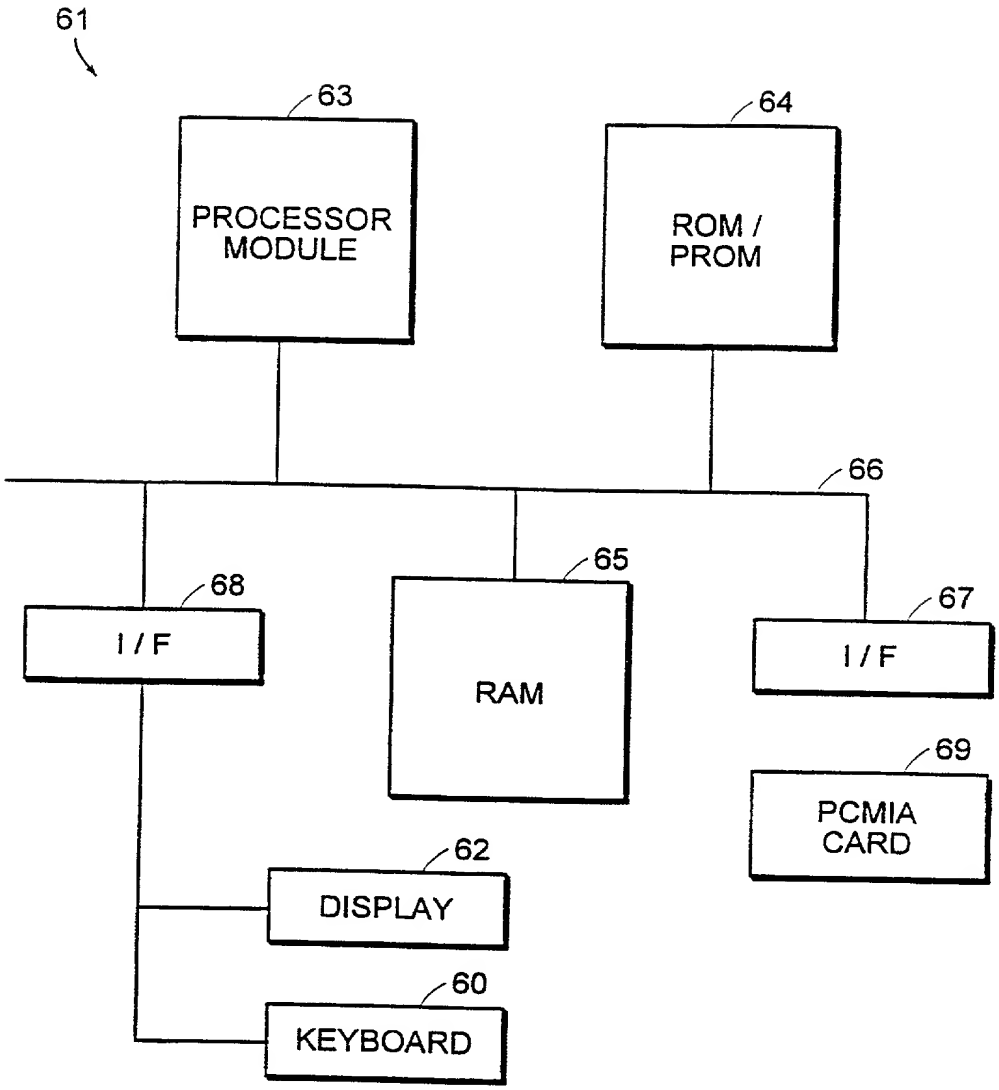
61
63
PROCESSOR MODULE
64
ROM / PROM
66
68
I / F
65
RAM
67
I / F
69
PCMIA CARD
62
DISPLAY
60
KEYBOARD

FIG. 6

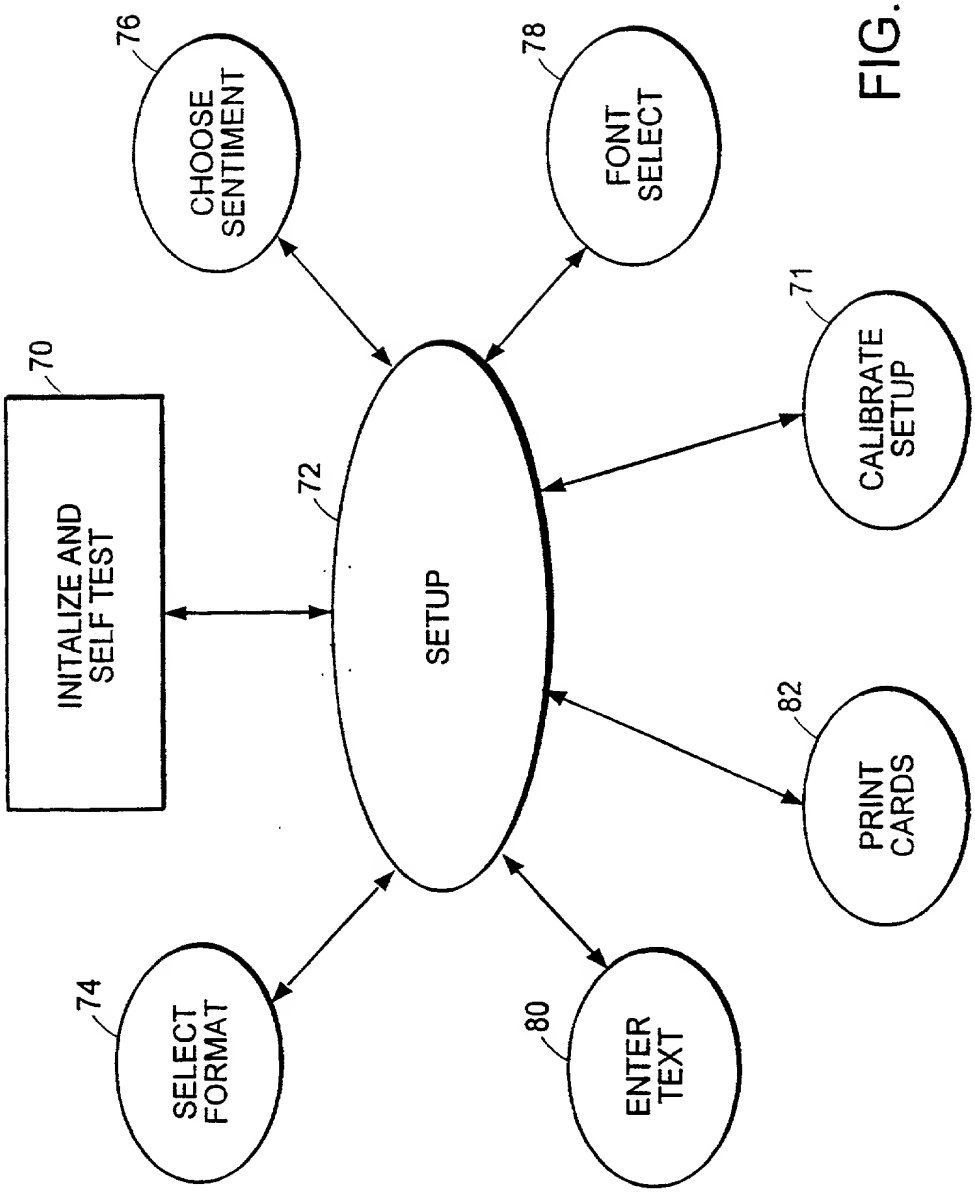
INITALIZE AND SELF TEST
70
SETUP
72
CHOOSE SENTIMENT
76
FONT SELECT
78
CALIBRATE SETUP
71
PRINT CARDS
82
ENTER TEXT
80
SELECT FORMAT
74

FIG. 7

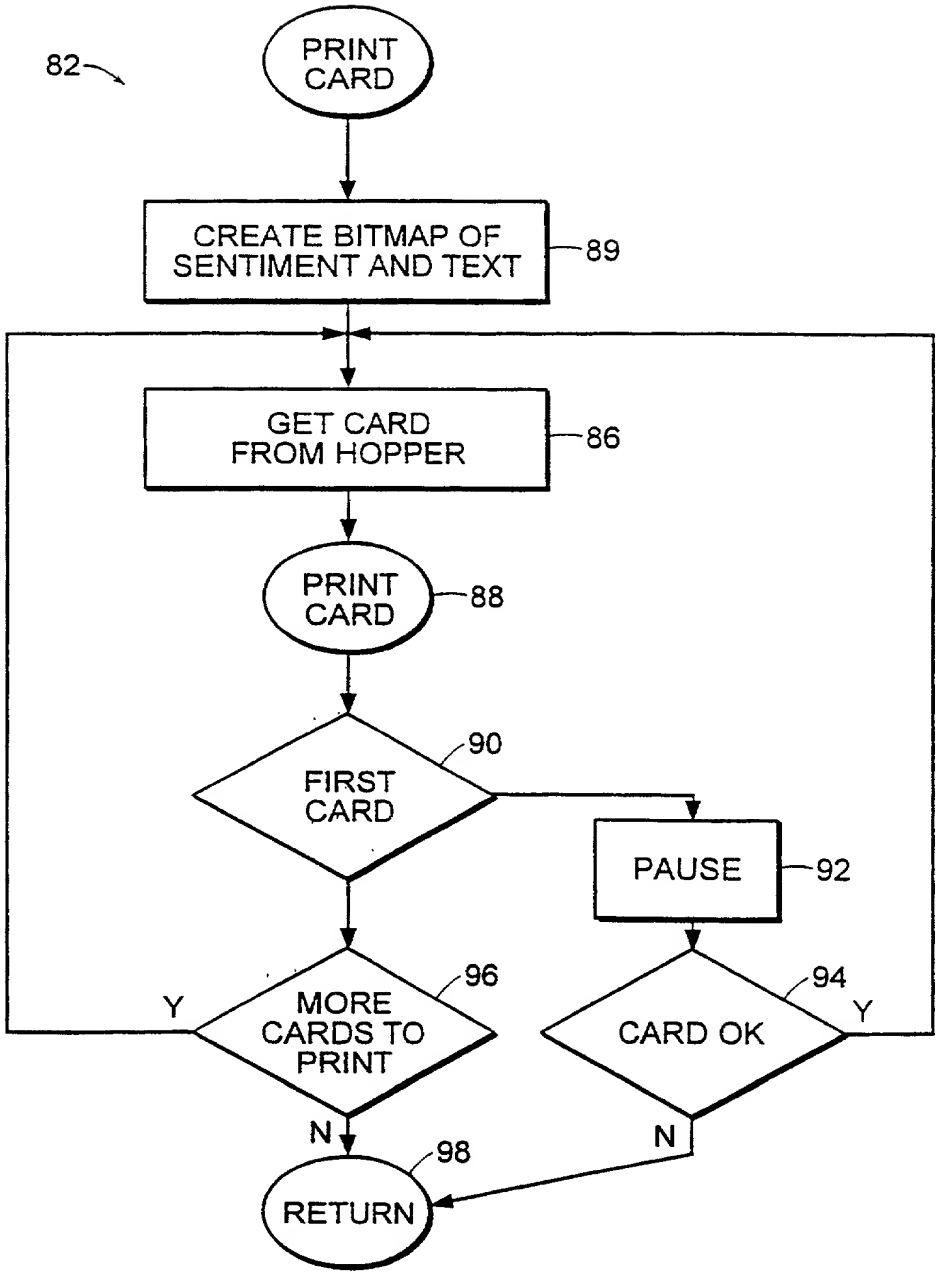
82
PRINT CARD
CREATE BITMAP OF SENTIMENT AND TEXT
89
GET CARD FROM HOPPER
86
PRINT CARD
88
FIRST CARD
90
PAUSE
92
MORE CARDS TO PRINT
96
Y
CARD OK
94
Y
N
N
RETURN
98

FIG. 8

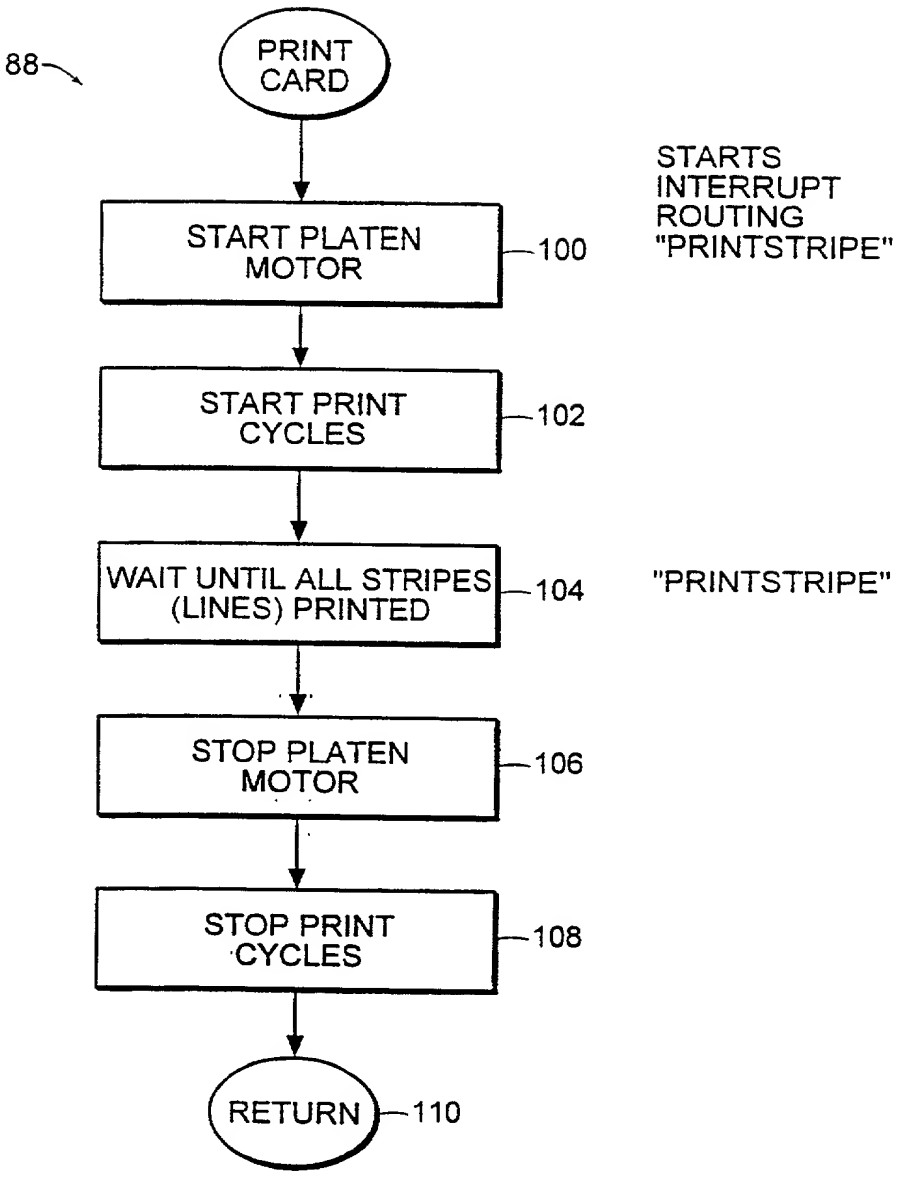
88
PRINT CARD
START PLATEN MOTOR
100
STARTS INTERRUPT ROUTING "PRINTSTRIPE"
START PRINT CYCLES
102
WAIT UNTIL ALL STRIPES (LINES) PRINTED
104
"PRINTSTRIPE"
STOP PLATEN MOTOR
106
STOP PRINT CYCLES
108
RETURN
110

FIG. 9

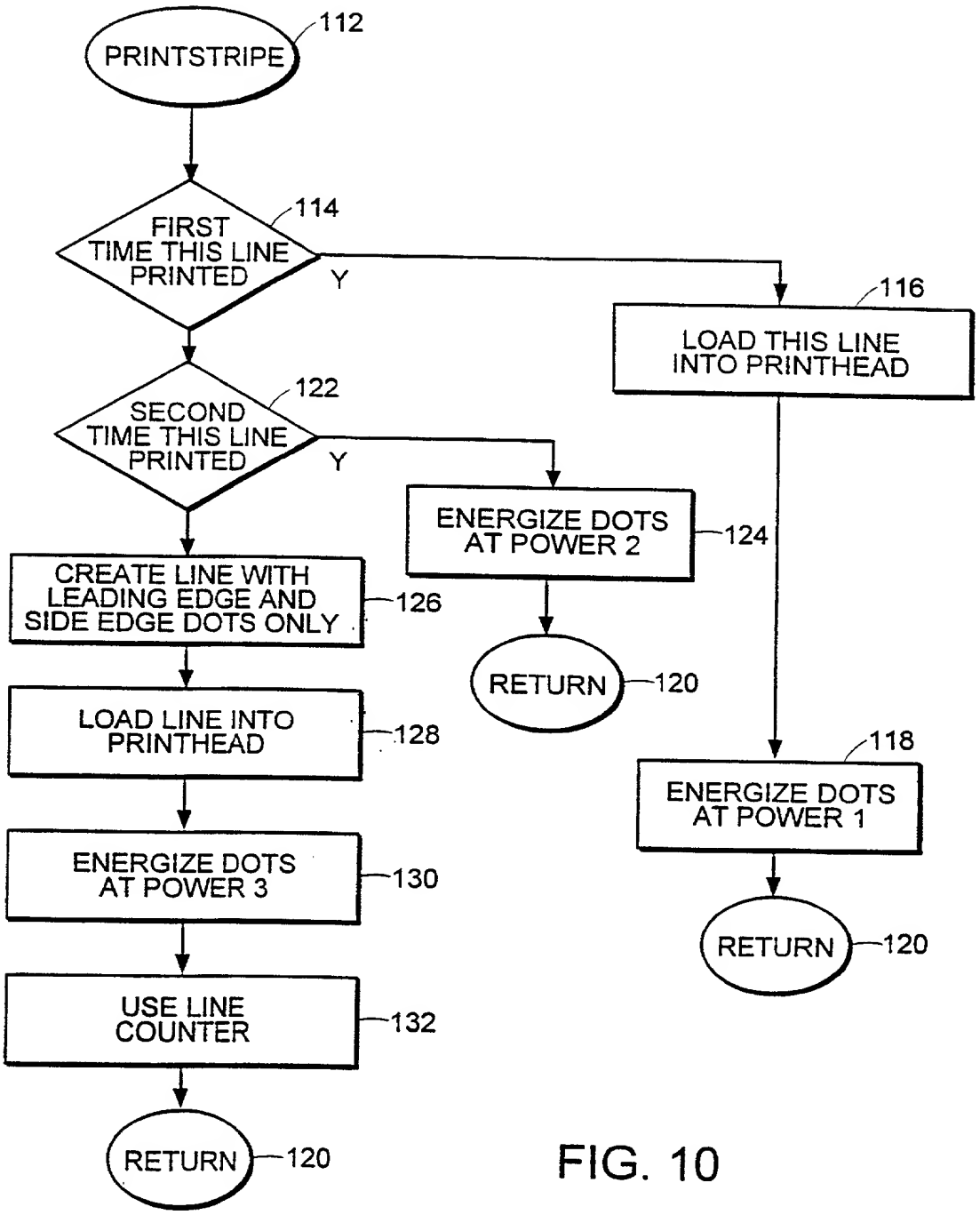
PRINTSTRIPE
112
FIRST TIME THIS LINE PRINTED
114
Y
LOAD THIS LINE INTO PRINTHEAD
116
SECOND TIME THIS LINE PRINTED
122
Y
ENERGIZE DOTS AT POWER 2
124
CREATE LINE WITH LEADING EDGE AND SIDE EDGE DOTS ONLY
126
RETURN
120
LOAD LINE INTO PRINTHEAD
128
ENERGIZE DOTS AT POWER 1
118
ENERGIZE DOTS AT POWER 3
130
RETURN
120
USE LINE COUNTER
132
RETURN
120

FIG. 10

DECLARATION FOR UNITED STATES PATENT APPLICATION

As a below named inventor, I (we) hereby declare that:

My residence, post office address and citizenship are the same as stated below next to my name.

I (we) believe I am (we are) an original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Noribogaine in the Treatment of Pain and Drug Addiction

the specification of which (check one)

☐ is attached hereto.

☐ was filed on _____ as Application Serial No. _____

and was amended on _____ (if applicable).

☒ was filed as PCT International application No. PCT/US98/18284 on September 3, 1998

and was amended on _____ (if applicable).

I (we) hereby state that I (we) have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I (we) acknowledge the duty to disclose information known to me to be material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I (we) hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Number	Country	Filing Date (mm/dd/yyyy)	Priority Claimed
PCT/US98/18284		09/03/98	☒ Yes ☐ No

I (we) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Number	Filing Date (mm/dd/yyyy)

I (we) hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulation, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

Application Serial No.	Filing Date (d/m/y)	Status (Patented, Pending, Abandoned)

I (we) hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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New York, New York 10017

I (we) hereby declare that all statements made herein of my (our) own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willfulfalse statements may jeopardize the validity of the application or any patent issued thereon.

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100

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X 2/29/2000
Date

X Deborah Mash Ph.D
Inventor's Signature